



Intel® NetStructure™ DM/IP241-1T1-PCI-100BT, DM/IP301-1E1-PCI-100BT, DM/IP481-2T1-PCI-100BT, DM/IP481-2T1-CPCI-100BT, DM/IP601-2E1-PCI-100BT, DM/IP601-2E1-CPCI-100BT, and DM/IP601-CPCI-100BT IP Boards



DM/IP481-2T1-PCI-100BT



DM/IP481-2T1-CPCI-100BT

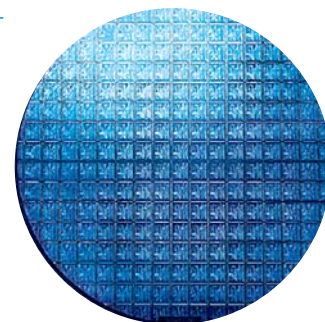
Use Intel® NetStructure™ DM/IP241-1T1-PCI-100BT, DM/IP301-1E1-PCI-100BT, DM/IP481-2T1-PCI-100BT, DM/IP481-2T1-CPCI-100BT, DM/IP601-2E1-PCI-100BT, DM/IP601-2E1-CPCI-100BT and DM/IP601-CPCI-100BT IP boards to build next-generation IP telephony solutions for the enterprise and service provider marketplace. Original equipment

Intel in
Communications

Features

Benefits

On-board media processing for both PSTN and IP interfaces	Enables media gateway and IP messaging applications in a single slot
Supports H.323 or SIP under R4 and Global Call APIs	Compatible with leading Voice over IP (VOIP) standards
Support for other IP protocols such as MGCP and Megaco (H.248) through the use of host-based split call control	Customer can use any call control stack through the IP Media Library
Supports ITU T.38 real-time FOIP	Critical for unified messaging solutions and packet-based fax relay
Provides 0, 1, or 2 PSTN interface(s) (T-1 or E-1), Ethernet connection, and mediastream processing capability on a single card	Reduces time-to-market and lowers cost by eliminating complexities associated with multiple resources



Model Descriptions

Model Number	Type of Telephony Interfaces	Number of IP Channels
DM/IP241-1T1-PCI-100BT	Digital T-1	24
DM/IP301-1E1-PCI-100BT	Digital E-1	30
DM/IP481-2T1-PCI-100BT	Digital T-1	48
DM/IP481-2T1-CPCI-100BT	Digital T-1	48
DM/IP601-2E1-PCI-100BT	Digital E-1	60
DM/IP601-2E1-CPCI-100BT	Digital E-1	60
DM/IP601-CPCI-100BT	None	60

manufacturers (OEMs), application developers, and IP telephony integrators can use these open, standards-based IP-enhanced services platforms to create high-performance, next-generation media processing sub-systems. These IP telephony boards support the H.323 and SIP standards for communication across Internet Protocol (IP) networks and a wide variety of vocoder algorithms.

Standards-Based IP Development Platform

The optimized design of these IP boards incorporates all the necessary IP-related features on a single board. The platform includes an IP protocol stack that complies with the International Telecommunications Union (ITU-T) H.323¹ specification (including H.225 and H.245 protocols) and it also supports Session Initiation Protocol (SIP).

Multiple Vocoder Support

These IP boards from Intel offer a full range of optimized, low-bandwidth vocoder algorithms for transmitting audio over an IP network, including the ITU-T G.711, G.723.1, G.729a, ITU GSM, and real-time Fax over IP (FOIP; ITU T.38). These algorithms use a variety of coding techniques, bit rates, and frame sizes to compress audio for managing data network bandwidth. The products' wide algorithm support gives

you the ability to deploy IP-based applications throughout the world.

Advanced features include voice activity detection (VAD) for maximum bandwidth utilization (supported in G.729a and G.723.1 coders only), as well as embedded high-performance echo cancellation and out-of-band dual-tone multifrequency (DTMF; touchtone) processing optimized for the IP network. The jitter buffers can be tuned for optimal performance. The product also supports IETF RFC2833 for out-of-band DTMF tones.

Improved Quality of Service

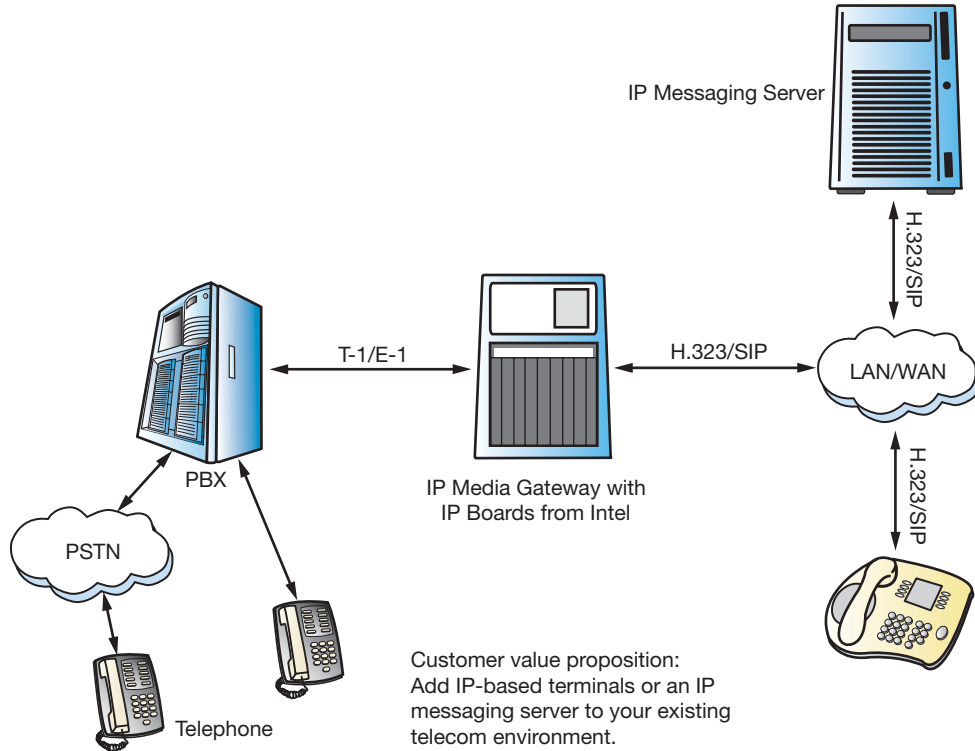
The IP boards offer improved quality of service (QoS) performance over IP networks. Threshold alarms alert an application when network QoS parameters (jitter, latency, and packet loss) deteriorate below user-administered levels. These alarms help improve traffic engineering, allowing more efficient use of IP networks. They also enable dynamic decision-making, which lets IP calls be rerouted onto the public switched telephone network (PSTN) in the event of network congestion.

IP packets carrying real-time voice and fax can be routed with higher priority by setting IP precedence bits.

Applications

- IP gateways
- IP media server (voice mail/unified messaging)
- IP conferencing server
- Interactive voice response (IVR) services
- Web-enabled customer relationship management (CRM) centers and help desks
- Debit/calling card applications
- Voice portals
- T.38 Fax over Internet Protocol (FOIP)

¹ H.323 sets standards for audio, video, and data communications across IP networks not providing guaranteed Quality of Service.



Contact Center Architecture: IP and Multimedia

Configurations

Use the Intel NetStructure DM/IP241-1T1-PCI-100BT, DM/IP301-1E1-PCI-100BT, DM/IP481-2T1-PCI-100BT, DM/IP481-2T1-CPCI-100BT, DM/IP601-2E1-PCI-100BT, DM/IP601-2E1-CPCI-100BT and DM/IP601-CPCI-100BT IP boards to build a variety of IP-based solutions including complete gateway platforms that bridge the PSTN and IP networks, and IP-enabled enhanced services platforms like unified messaging, contact center, follow-me, and voice activated dialing. These products provide all of the required IP resources — data network interface, telephone network interface, IP, and H.323 and SIP stacks — as well as mediastream processing resources on a single board. Additional Intel and third-party resources can be accessed through H.100 and H.110 connections.

Software Support

Intel NetStructure DM/IP241-1T1-PCI-100BT, DM/IP301-1E1-PCI-100BT, DM/IP481-2T1-PCI-100BT, DM/IP481-2T1-CPCI-100BT, DM/IP601-2E1-PCI-100BT, DM/IP601-2E1-CPCI-100BT and DM/IP601-CPCI-100BT IP boards run under the Windows 2000* and Linux* operating systems. They are supported by a system release package containing the complete documentation, and demonstration code.² Intel high-level APIs (R4 and Global Call) provide a standards-based method for developing IP gateway applications.

² Customers should specify the desired operating system when ordering. Software package content varies with operating system.

Technical Specifications

Hardware Specifications

Control processor	Intel® i960CF processor at 33 MHz, 60 MIPS
Control processor memory	Up to 8 MB local to control processor
Signal processors	DSP: Motorola* 56311, 1 K word program cache, 150 MIPS PowerQuick2: Motorola 8260* at 166/200 MHz Control processor: 133 MHz
Signal processor memory	DSP: 512 K word SRAM local to each DSP PowerQuick2: 4M word of SDRAM for core Control processor: 2M word of SDRAM
Baseboard global memory	4 MB, 8 MB, or 16 MB of 32-bit-wide DRAM accessible to all signal processors, control processor, and host 72-pin SO DIMM modules for easy upgrades
Real-time media bus	Up to 256 full-duplex channels at 64 Kb/s onto ANSI SCbus Supports SCSA time slot bundling (N x 64 K channels) for high-bandwidth requirements
CT Bus speed	ECTF H.100 CT Bus interoperability Up to 8 MHz/256 Mb/s SCbus and MVIP+ bus mode supported

Host Interface

Host interface memory	512 KB
Bus compatibility	Rev 2.2 of PCI Bus Specification
Bus mode	Target and DMA master mode operation
Form factor	PCI long card, CompactPCI*

Power Requirements

DM/IP241-1T1-PCI-100BT	22.5 watts @ 5 V
DM/IP301-1E1-PCI-100BT	22.5 watts @ 5 V
DM/IP481-2T1-PCI-100BT	22 watts @ 3.3 V, 8 watts @ 5 V
DM/IP481-2T1-CPCI-100BT	22.5 watts @ 5 V
DM/IP601-2E1-PCI-100BT	22 watts @ 3.3 V, 8 watts @ 5 V
DM/IP601-2E1-CPCI-100BT	19 watts @ 5 V; 9.8 watts @ 3.3 V
DM/IP601-CPCI-100BT	19 watts @ 5 V; 9.8 watts @ 3.3 V

Cooling Requirement

Cooling condition per maximum operating temperature

PCI	50°C – 2.3 CFM per board
	40°C – 1.5 CFM per board
	30°C – 1.1 CFM per board
CompactPCI	50°C – 3.1 CFM per board
	40°C – 2.1 CFM per board
	30°C – 1.6 CFM per board

Environment

Operating temperature	0°C to +50°C
Storage temperature	-20°C to +70°C
Humidity	8% to 80% non-condensing

Software Specifications

Control processor operating system	VxWorks* from Wind River Systems, Inc.
Signal processor operating system	SPOX* from Spectron Microsystems
Downloaders, drivers, and libraries	Provided for each operating system

Technical Specifications (cont.)

Approvals

Safety and EMC Certifications

Canada	ICES-003 Class A ULc 60950 File E96804
Europe	EN60950 EN55022 EN55024
Japan	VCCI Class A
US	FCC Part 15 Class A UL 60950 File E96804
International	IEC60950 CISPR 22 CISPR 24

Telecom Approvals

For specific country approval designation, see the Intel Communications Systems Products Global Product Approvals listing at <http://resource.intel.com/globalapproval/globalapproval.asp> or contact your Authorized Distributor.

United States	EBZUSA-31207-XD-T
Canada	IC: 885-7969A
European Union	DoC 01/10/2003

Hardware System Requirements

- Pentium®, PCI bus, CompactPCI bus, or compatible computer
- Operating system hardware requirements vary according to the number of channels being used

Operating System Requirements

- Windows 2000 and Linux

Additional Components (with Item Market Names)

- Intel Dialogic System Release 6.0 for CompactPCI for Linux (SR60CPCILINUX)
- Intel Dialogic System Release 6.0 for CompactPCI for Windows (SR60CPCIWIN)
- Rear IO module, T-1, no key; for T-1 networks, non-keyed chassis (REARIOV19T1)
- Rear IO module, T-1, keyed; for T-1 networks, keyed chassis (REARIOV19T1KY)
- Rear IO module, E-1, 120 Ohm, no key; for 120 Ohm E-1 networks, non-keyed chassis (REARIOV19E1120)
- Rear IO module, E-1, 120 Ohm, keyed; for 120 Ohm E-1 networks, keyed chassis (REARIOV19E1120K)
- Rear IO module, E-1, 75 Ohm, no key; for 75 Ohm E-1 networks, non-keyed chassis (REARIOV19E175)
- Rear IO module, E-1, 75 Ohm, keyed; for 75 Ohm E-1 networks, keyed chassis (REARIOV19E175KY)

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